

Sum-of-Absolute-Difference Checking of Macroblock Borders for Error Detection in a Corrupted MPEG-4 Bitstream

Abstract of Disclosure

An MPEG decoder verifies a previous video packet by calculating the sum-of-the-absolute differences (SAD) for macroblock boundaries. When a macroblock counter goes off count, the macroblocks can be placed in the wrong relative locations in a frame. Image shapes are sliced when macroblock misplacement occurs, creating many new bisecting edges along macroblock boundaries. These image discontinuities along macroblock boundaries have a large SAD for pixels on either side of the macroblock boundary. The SAD is generated along the left and upper edges of a current macroblock, and a maximum SAD of all macroblocks in the previous video packet is generated. When the maximum SAD is above a threshold, the macroblock counter is likely to be in error, and the macroblock counter is reloaded with the header macroblock number from the next packet header. When the SAD is below threshold, a mis-matching header macroblock number is ignored.

Figures